

NOTES ON COASTAL TIGER BEETLES (COLEOPTERA: CICINDELIDAE)

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Abstract. Following an earlier study (Wise 1988), two previously unseen publications are noted and *Neocicindela perhispidata* is discussed. A further locality record, on Great Barrier I, is given for *Neocicindela brevilunata*. This species is not known to occur further south on the east coast of the North I and *N. perhispidata* is not known to extend southwards on the west coast either on black ironsands or lighter coloured sands.

On dark ironsands of the North I west coast, the common land tiger beetle, *N. tuberculata*, has been found to forage with *N. perhispidata* var *campbelli* and to replace it further south.

The distribution of northern North Island tiger beetles occurring on sandy beaches and dunes of different colours has been recorded previously (Wise 1988). *Neocicindela perhispidata* (Broun, 1880) inhabits the west coasts from Kawhia northwards, around the northern tip and the east coast as far south as Karikari Peninsula. Three varieties occur, *campbelli* on the dark ironsands of the west coast, *perhispidata* on the creamy yellow sands further north and *giveni* on the far northern whiter sands and the eastern white quartz sands.

A paper by Hadley, Schultz & Savill (1988) was not seen by the present author until after his paper was published. These authors had examined the three entities of *N. perhispidata* (as subspecies) on the differently coloured sands of three well-separated localities and compared reflectances between the beetles and the sands they were on. While individuals of this species from particular areas may appear as distinct entities, beetles in and near change-zones (see Wise 1988) are sometimes difficult to place in either of the neighbouring entities, which is the reason for considering the entities as varieties rather than subspecies.

Another paper on North I Cicindelids, by Wiesner (1988), was published just after that by the author (Wise 1988) but has only been seen recently. Wiesner recorded species from his own collecting here during December 1987 — January 1988. He recorded three subspecies of *Neocicindela perhispidata* within the known range for each (see Wise 1988) but also named another subspecies, *N. perhispidata savilli*, for the tiger beetles on white quartz sand on the east coast of the northern peninsula (Rarawa). The present author can only reiterate the comment made above and further point out that there is wide variation in the pale colour and extent of markings on the elytra in this species.

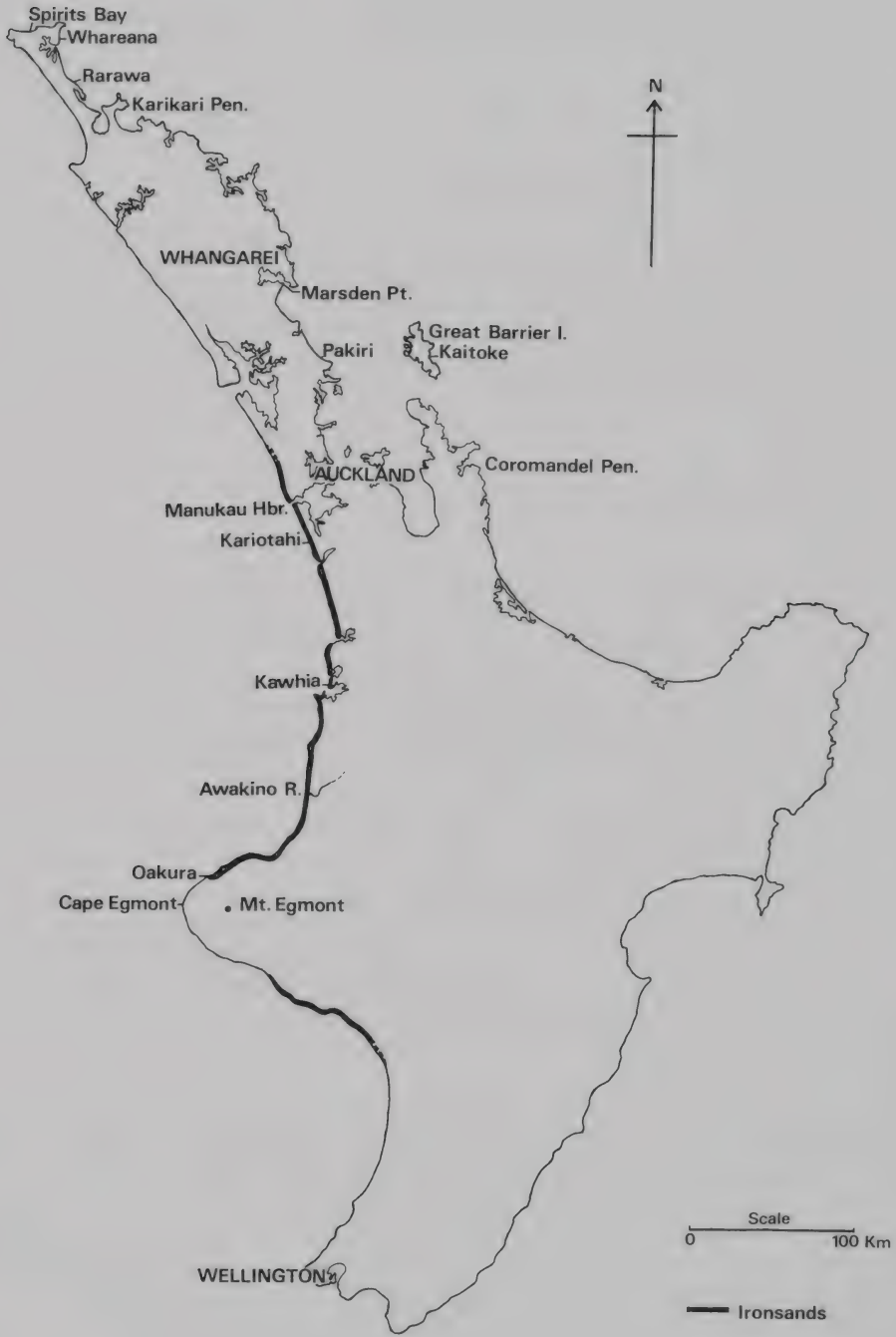


Fig. 1. Map of North Island, New Zealand, showing localities mentioned (ironsands after Williams 1974).

Four specimens of *N. perhispidata* were taken in December 1989 (coll. K.A.J.W.) at Whareana (Fig. 1) where the sand is darker than at both Spirits Bay on the north coast and further south as at Rarawa. Two males are with markings as on Rarawa specimens but two females have markings more as on some specimens from the northern west coast. Further, amongst 10 specimens previously recorded (Wise 1988) from Karikari Pen. (the southern limit of the species on the east coast), where the sand is darker than further north (Rarawa), there are indications also, on at least two specimens, of a reversal of dark markings back towards those of the northern west coast. If a criterion for subspecies is geographic separation, and there is none through the whole geographic range of *N. perhispidata*, only sand colour differences, then the variations do not warrant subspecific rank.

Another species, *Neocicindela brevilunata* (Horn, 1926) was shown (Wise 1988) to inhabit white sands on the east coast south of Whangarei Harbour, from Marsden Pt. southwards to Pakiri. This species is now found to occur also on Great Barrier I (Fig. 1) from specimens in the National Museum (Kaitoke Beach, Gt Barrier I, 17-29.I.1930, A.E. Brookes, 8 spec.). *N. brevilunata* has also been recorded by Wiesner (1988) within the known range at Marsden Pt and further south.

So far there is no indication that either of these species occurs further south on North I coasts. From personal searches and examination of specimens in collections it appears that there are no specialised coastal sand species on the various beaches from Coromandel Pen. southwards to the south coast and Wellington. The same applies on the west coast from the Awakino River southwards to Wellington.

There is one specimen of *N. perhispidata* var. *perhispidata* in the Horn Collection (ATIE) labelled "Wellington New Zealand" collected by "Baker". However, Horn, himself (1936:11), doubted the locality and Fuller Baker (op. cit.) was an entomologist visiting New Zealand.

The black ironsands, which originated from the Taranaki andesites of Mt Egmont (see Williams 1974), were spread northwards by ocean currents along the coast (Fig. 1). These gave rise to the dark variety of *N. perhispidata* known as *campbelli*. The dark ironsands are also present on the coast south of Mt Egmont but *campbelli* does not reach that far south. There is no occurrence, known to the author, of *N. perhispidata* further south on the lighter coloured sands of that coast.

However, it appears that the common land species of tiger beetles in New Zealand, *Neocicindela tuberculata*, is dark enough to survive on the dark ironsands. Where low banks are present above the beaches, individuals can be seen flying onto and running on the black sands in the process of foraging. The author has seen this activity on beaches between the Manukau Hbr (west of Auckland) and Cape Egmont (west of Mt Egmont). On beaches south of Awakino R to Oakura, *N. tuberculata* can be seen frequently in the summer. Farther north at Kariotahi, both *N. tuberculata* and *N. perhispidata* var. *campbelli* were foraging on the black sands together. Many individuals of both species have been seen there running and mixing on the sand while foraging, to the extent of body contact, although no attempt at inter-specific mating was seen.

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